

## FLIGHT SUMMARY REPORT

**Flight Number:** 98-031  
**Calendar/Julian Date:** 09 March 1998 • 068  
**Sensor Package:** Modis Airborne Simulator (MAS)  
**Area(s) Covered:** Southern California (Channel Islands)

**Investigator(s):** Functional Sensor Flight

**Aircraft #:** 709

### SENSOR DATA

**Accession #:** -----  
**Sensor ID #:** 108  
**Sensor Type:** MAS50  
**Focal Length:** -----  
**Film Type:** -----  
**Filtration:** -----  
**Spectral Band:** -----  
**f Stop:** -----  
**Shutter Speed:** -----  
**# of Frames:** -----  
**% Overlap:** -----  
**Quality:** -----  
**Remarks:**

## **Airborne Science and Applications Program**

The Airborne Science Branch at NASA's Dryden Flight Research Center, Edwards, California, operates two ER-2 high altitude aircraft in support of NASA earth science research. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and in situ data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor(s) and camera(s) used for data collection during this flight.

## **Flight Documentation and Data Archive Searches**

Additional information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Airborne Sensor Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).

## **MODIS Airborne Simulator**

The MODIS Airborne Simulator (MAS) is a modified Daedalus multispectral scanner configured to replicate the capabilities of the Moderate-Resolution Imaging Spectrometer (MODIS), an instrument to be orbited on an EOS platform. MODIS is designed for the measurement of biological and physical processes and atmospheric temperature sounding. The MODIS Airborne Simulator records fifty 16-bit channels of multispectral data and is configured as follows:

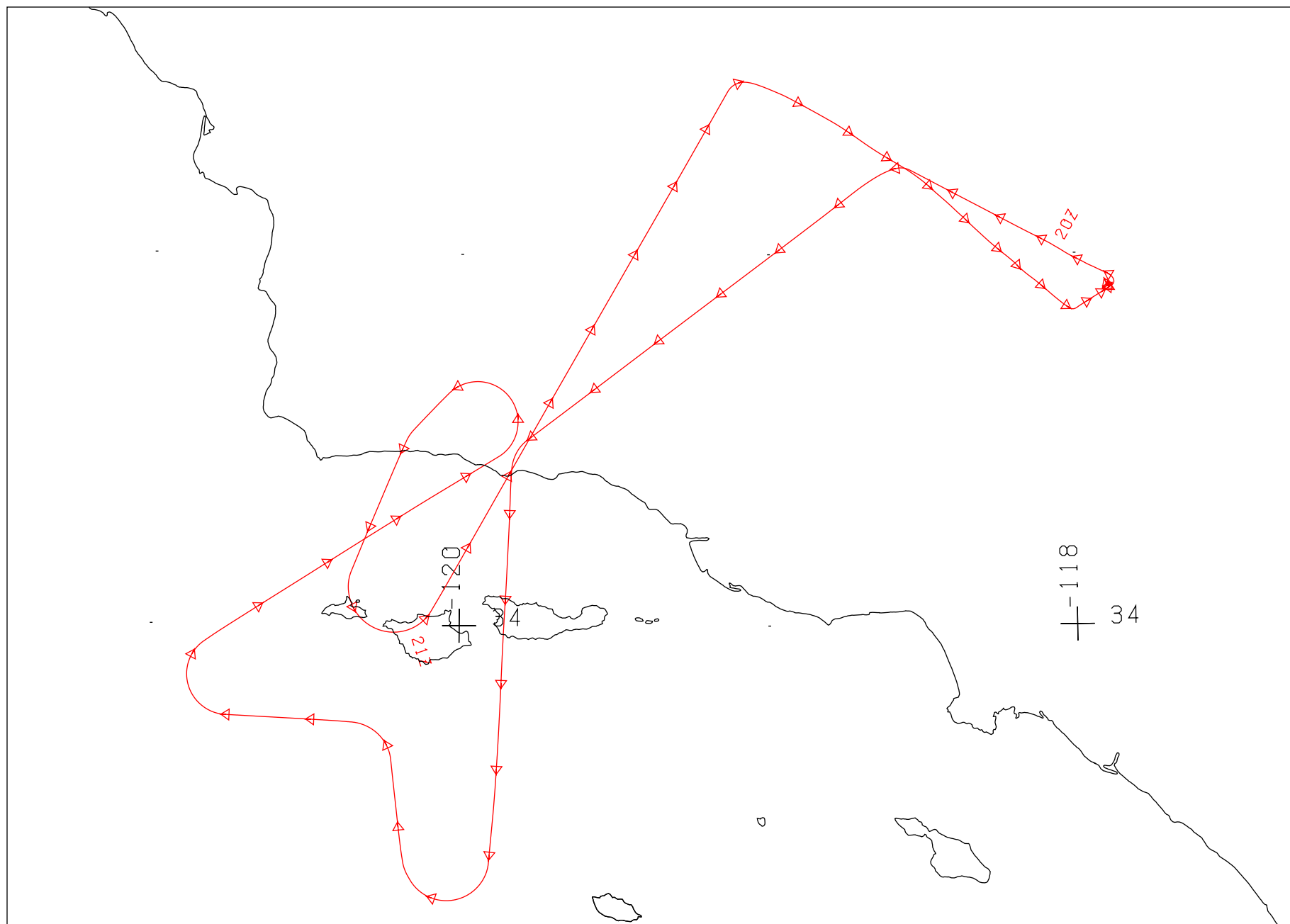
Spectral Channel	Band center (μm )	Bandwidth (μm )	Spectral Range
1	0.4649	0.0397	0.4451-0.4848
2	0.5494	0.0417	0.5285-0.5703
3	0.6550	0.0511	0.6294-0.6805
4	0.7024	0.0415	0.6816-0.7231
5	0.7431	0.0420	0.7221-0.7641
6	0.8248	0.0427	0.8034-0.8461
7	0.8667	0.0414	0.8460-0.8874
8	0.9072	0.0409	0.8867-0.9276
9	0.9476	0.0397	0.9277-0.9674
10	1.6422	0.0519	1.6163-1.6682
11	1.6975	0.0505	1.6722-1.7228
12	1.7499	0.0506	1.7245-1.7752
13	1.8014	0.0491	1.7768-1.8259
14	1.8548	0.0489	1.8303-1.8792
15	1.9044	0.0487	1.8801-1.9288
16	1.9553	0.0483	1.9312-1.9794
17	2.0048	0.0487	1.9804-2.0291
18	2.0551	0.0484	2.0309-2.0793
19	2.1037	0.0486	2.0794-2.1280
20	2.1532	0.0483	2.1291-2.1774
21	2.2019	0.0481	2.1779-2.2259
22	2.2522	0.0486	2.2278-2.2675
23	2.3021	0.0487	2.2777-2.3265
24	2.3512	0.0476	2.3274-2.3750
25	2.4005	0.0483	2.3764-2.4246

Spectral Channel	Band center (μm )	Bandwidth (μm )	Spectral Range
26	3.1192	0.1616	3.0384-3.2000
27	3.2809	0.1486	3.2066-3.3552
28	3.4330	0.1617	3.3521-3.5138
29	3.5940	0.1539	3.5170-3.6709
30	3.7449	0.1449	3.6724-3.8174
31	3.9069	0.1602	3.8267-3.9870
32	4.0707	0.1554	3.9929-4.1484
33	4.1699	0.0669	4.1365-4.2034
34	4.4029	0.1255	4.3401-4.4656
35	4.5404	0.1512	4.4648-4.6160
36	4.6979	0.1591	4.6184-4.7775
37	4.8536	0.1516	4.7778-4.9294
38	5.0033	0.1468	4.9298-5.0767
39	5.1588	0.1400	5.0888-5.2288
40	5.3075	0.1327	5.2412-5.3738
41	5.3977	0.0755	5.3590-5.4365
42	8.5366	0.3950	8.3391-8.7341
43	9.7224	0.5365	9.4541-9.9906
44	10.5071	0.4579	10.278-10.736
45	11.0119	0.4710	10.776-11.247
46	11.9863	0.4196	11.776-12.196
47	12.9013	0.3763	12.713-13.089
48	13.2702	0.4584	13.041-13.500
49	13.8075	0.5347	13.540-14.075
50	14.2395	0.3775	14.051-14.428

NOTE: Bandpass centers approximate

### Sensor/Aircraft Parameters:

Spectral Bands: 50 (digitized to 16-bit resolution)  
IFOV: 2.5 mrad  
Ground Resolution: 163 feet (50 meter at 65,000 feet)  
Swath Width: 22.9 mi/19.9 nmi (36 km)  
Total Scan Angle: 85.92°  
Pixels/Scan Line: 716  
Scan Rate: 6.25 scans/second  
Ground Speed: 400 kts (206 m/second)  
Roll Correction: Plus or minus 3.5 degrees (approx.)



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A/C 709

MAS50